

INDIANA DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS DIVISION

LABORATORY TESTING OF PCC SEALER/HEALERS
ITM No. 808-00T

1.0 SCOPE

1.1 This test method covers the procedure for the laboratory testing of sealer/healers by repairing a concrete beam with the sealer/healer previously broken in flexure and retesting the repaired beam in flexure.

1.2 The values stated in either SI metric or acceptable English units are to be regarded separately as standard, as appropriate for a specification with which this ITM is used. Within the text, English units are shown in parenthesis. The values stated in each system may not be exact equivalents; therefore each system shall be used independently of the other, without combining values in any way.

1.3 This ITM may involve hazardous materials, operations, and equipment. This ITM does not purport to address all of the safety problems associated with the ITM's use. The ITM user's responsibility is to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2.0 REFERENCED DOCUMENTS

2.1 AASHTO Standards

T 97 Flexural Strength of Concrete Using Simple Beam with Third Point Loading

3.0 TERMINOLOGY

3.1 Terms and Abbreviations. Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101.

4.0 SIGNIFICANCE AND USE

4.1 This ITM is often used to confirm the sealing and healing ability of sealer/healers.

5.0 APPARATUS AND MISCELLANEOUS ITEMS

5.1 The testing machine shall conform to the requirements of AASHTO T 97.

5.2 Plastic or brass bristled brush.

5.3 Metal shot 3 mm (1/8 in.) in diameter.

5.4 Duct or masking tape.

5.5 Paste or gel type material to seal the sides of the broken beams.

5.6 Plastic sheeting and craft paper to protect the testing surface.

5.7 Silicon sealer to create a dike at the top surface of the beam.

6.0 PREPARATION OF TEST SPECIMEN

6.1 Obtain four 150 mm X 150 mm X 560 mm (6 in. X 6 in. X 18 in.) PCC beams. Beams must have a minimum flexural strength of 3800 kPa (550 psi), third point loading. Determine flexural strength in accordance with AASHTO T 97 or gather previously broken beam portions with known dimensions. The orientation of the beam in the testing machine during testing must be known.

6.2 Clean the broken face and the sides of the beam portions, with a plastic or brass bristled brush, to remove debris and provide a clean adhesive surface. A steel bristled brush will polish the concrete and create a poor bonding surface.

6.3 Place the two beam portions of each beam together to confirm that beam portions match.

6.4 Separate the beam portions using small spacers, such as metal shot 3 mm (1/8 in.) in diameter, to create a crack in the PCC beam.

6.5 Tape the outsides of the PCC beam, at the break, along the sides and bottom of the beam, in reference to the finished surface, with duct or masking tape.

6.6 Carefully seal the outsides of the PCC beam, at the break, along the sides and bottom. The material must be sufficient to retain the sealer/healer without allowing leakage. A paste or gel type material may be used.

6.7 Allow the material used to seal the sides and bottom of the PCC beam to cure in accordance manufacturer's instructions.

6.8 Protect the surface used for testing by lining with plastic sheeting and craft paper.

6.9 Place the four beams flat on the testing surface with the top of the beams exposed.

6.10 Create a dike at the top of the beam with silicon sealer. Allow the silicon to cure for approximately two hours.

7.0 PROCEDURE

7.1 Mix sealer/healer in accordance with manufacturer's instructions. It may be necessary to mix the sealer/healer in small batches.

7.2 Pour or inject sealer/healer in the crack created. Continue to add the sealer/healer until the crack is filled and is flush with the top of the beam.

7.3 Allow the sealer/healer to cure for seven days at room temperature.

7.4 Carefully remove the material used to seal the outside of the beams. Material is typically removed with a small chisel.

7.5 Remove the tape from the top and sides of the beams.

7.6 Determine the flexural strength of the sealed/healed beams in accordance with AASHTO T 97. The orientation of the beams within the testing machine must be the same as when originally tested.

8.0 CALCULATIONS

8.1 Calculate the flexural strength of the beams in accordance with AASHTO T 97.

9.0 REPORT

9.1 Report the flexural strength to the nearest 50 kPa (5 psi).

9.2 Report the location of the break, relative to the rebonded zone.

10.0 PRECISION

10.1 The estimates of precision of this test method are based on results from AASHTO T 97.